CLAIMS

1.   In a direct sequence spread spectrum (DSSS) communications receiver, a system for ordering the soft symbols from associated information channels in a sample stream, the system comprising:

at least one demodulating finger having an output to supply soft symbols; and

at least one index section corresponding to the demodulating finger and having an output to supply indexing information for multiplexing the soft symbols output by the demodulating finger.

2.   The system of claim 1 wherein the demodulating finger has an input to receive the sample stream; and

wherein the index section has an input to accept association parameters, and wherein the index section output supplies an index value for each soft symbol.

3.   The system of claim 2 in which the association parameters include information concerning the number of associated information channels and symbol index offsets;

wherein the index section includes:

at least one adder having a first input to accept a first symbol index offset, the first adder having an output to supply a symbol index

offset responsive to the first symbol index offset and the number of associated channels.

4.   The system of claim 3 wherein each demodulating finger includes a plurality of finger channels and corresponding index sections; and

wherein each index section supplies index values for the soft symbols of its corresponding finger channel.

5.   The system of claim 4 wherein each finger channel includes a first and second finger channel section to supply soft symbols;

wherein the first adder of each index section supplies an index value for the soft symbols of the first finger channel section of the corresponding finger channel; and

each index section further including:

a second adder having a first input to accept a second symbol index offset and an output to supply a symbol index, offset responsive to first symbol index offset and the number of associated channels, for the second finger channel section of the corresponding finger channel.

6.   The system of claim 5 in which the input of each index section accepts code symbols per modulation symbol (CSPMS) values and chips per modulation symbols (CPMS) signals; and

wherein each index section further includes:

an accumulator having a first input to accept an accumulated CSPMS value, and second input to accept CPMS trigger, and an output to supply an accumulation value in response to the CPMS trigger; and

wherein the first and second adders each have a second input connected to the output of the accumulator, and wherein the output of each adder is the sum of the accumulation value and the symbol index offset.

7.   The system of claim 6 wherein each index section further includes:

a third adder having a first input connected to the output of the accumulator to accept the accumulation value, a second input to accept the CSPMS value, and an output connected to the input of the accumulator to supply the accumulated CSPMS value; and

a CPMS unit having an input to accept the CPMS signal and an output connected to the accumulator trigger to supply the trigger signal in response to a modulation symbol being accumulated.

8.   In a finger channel of a direct sequence spread spectrum (DSSS) communications receiver demodulating finger, an index section for ordering the soft symbols from associated information channels in a sample stream, the index section comprising:

a first adder having a first input to accept a first symbol index offset, a second input to accept the accumulation value, and an output to supply a symbol index offset that is the sum of the first symbol index offset and the accumulation value;

a second adder having a first input to accept a second symbol index offset and an output to supply a symbol index offset that is the sum of the second symbol index offset and the accumulation value;

a third adder having a first input to accept the accumulation value, a second input to accept a code symbols per modulation symbol (CSPMS) value, and an output to supply an accumulated CSPMS value which is the sum of the accumulation value and the CSPMS value;

a CPMS unit having an input to accept a CPMS signal and an output to supply a CPMS trigger signal in response to a modulation symbol being accumulated; and

an accumulator having a first input to accept the accumulated CSPMS value, and second input to accept the CPMS trigger, and an output to supply an accumulation value in response to the CPMS trigger.

9. In a direct sequence spread spectrum (DSSS) communications receiver, a system for ordering the soft symbols from associated information channels in at least one sample stream, the system comprising:

a plurality of demodulating fingers;

wherein each demodulating finger includes a plurality of finger channels with corresponding index sections for each finger channel;

wherein each finger channel has an output to supply soft symbols; and

wherein each index section has an output to supply a symbol index value for multiplexing the soft symbols output by its corresponding finger channel.

10. The system of claim 9 wherein each finger channel includes a pair of parallel finger channel sections;

wherein each index section has a first input to accept a code symbols per modulation symbol (CSPMS) value, a second input to accept a first symbol index offset, and a third input to accept a second symbol index offset, and wherein each index section has a first symbol index output responsive to the CSPMS and the first symbol index offset, and a second symbol index output responsive to the CSPMS and the second symbol index offset; and

wherein the first and second code symbol indexes of each index section are used for multiplexing the soft symbols of the first and second finger channel sections of the corresponding finger channel.

11. The system of claim 10 wherein a first index section, cooperating with a first finger channel, accepts a CSPMS value = 2 and symbol index offsets equal to 0 and 1;

wherein the first finger channel section supplies soft symbols with symbol indexes equal to 0, 2, 4, ...; and

wherein the second finger channel section supplies soft symbols with symbol indexes equal to 1, 3, 5, ...

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12. The system of claim 10 in which a first and second orthogonal sample streams, with associated information channels, are included;

wherein the first index section, cooperating with a first finger channel in a first demodulating finger, accepts a CSPMS value = 4 and symbol index offsets equal to 0 and 2;

wherein a second index section, cooperating with a second finger channel in a second demodulating finger, accepts a CSPMS value = 4 and symbol index offsets equal to 1 and 3;

wherein the first finger channel first finger channel section supplies soft symbols with symbol indexes equal to 0, 4, 8, ...;

wherein the first finger channel second finger channel section supplies soft symbols with symbol indexes equal to 2, 6, 10, ...;

wherein the second finger channel first finger channel section supplies soft symbols with symbol indexes equal to 1, 5, 9, ...; and

wherein the second finger channel second finger channel section supplies soft symbols with symbol indexes equal to 3, 7, 11 ...

13. The system of claim 10 in which first, second, and third sample streams, with multicarrier associated information channels, are included;

wherein a first index section, cooperating with a first finger channel in a first demodulating finger, accepts a CSPMS value = 6 and symbol index offsets equal to 0 and 3;

wherein a second index section, cooperating with a second finger channel in a second demodulating finger, accepts a CSPMS value = 6 and symbol index offsets equal to 1 and 4;

wherein a third index section, cooperating with a third finger channel in a third demodulating finger, accepts a CSPMS value = 6 and symbol index offsets equal to 2 and 5;

wherein the first finger channel first finger channel section supplies soft symbols with symbol indexes equal to 0, 6, 12, ...;

wherein the first finger channel second finger channel section supplies soft symbols with symbol indexes equal to 3, 9, 15, ...;

wherein the second finger channel first finger channel section supplies soft symbols with symbol indexes equal to 1, 7, 13, ...;

wherein the second finger channel second finger channel section supplies soft symbols with symbol indexes equal to 4, 10, 16, ...;

wherein the third finger channel first finger channel section supplies soft symbols with symbol indexes equal to 2, 8, 14, ...; and

wherein the third finger channel second finger channel section supplies soft symbols with symbol indexes equal to 5, 11, 17, ...

14. In a direct sequence spread spectrum (DSSS) communications receiver, a method for indexing the soft symbols of associated information channels, the method comprising:

accepting at least one sample stream including associated information channels;

accepting association parameters;

supplying soft symbols; and

supplying indexing information for the soft symbols.

15.   The method of claim 14 wherein:

accepting association parameters includes accepting a code symbols per modulation symbol (CSPMS) value;

accepting association parameters includes accepting symbol index offset values; and

supplying indexing information includes supplying a symbol index for soft symbols in response to the CSPMS value and the symbol index offset.

16.   The method of claim 15 wherein:

accepting the sample stream includes accepting associated first and second information channels;

accepting association parameters includes accepting a CSPMS = 2, and symbol index offsets in the range from 0 to 1;

supplying soft symbols from the first and second information channels; and

supplying indexing information includes supplying a symbol index with each soft symbol from the first and second associated information channels.

17.   The method of claim 16 wherein supplying soft symbols includes supplying soft symbols from the first information channel with

symbol indexes equal to 0, 2, 4, ... and supplying soft symbols from the second information channel with symbol indexes equal to 1, 3, 5,...

18.   The method of claim 15 wherein accepting at least one sample stream includes accepting first and second orthogonal sample streams with respective first and second associated information channels;

wherein accepting association parameters includes accepting a CSPMS = 4, and symbol index offsets in the range from 0 to 3;

wherein supplying soft symbols includes supplying soft symbols from the first and second information channels; and

wherein supplying indexing information includes supplying a symbol index with each soft symbol from the first and second associated information channels.

19.   The method of claim 18 wherein supplying soft symbols includes supplying soft symbols from the first information channel with the symbol indexes equal to 0, 2, 4,... and supplying soft symbols from the second information channel with symbol indexes equal to 1, 3, 5, ...

20.   The method of claim 15 wherein accepting at least one sample stream includes accepting a first, second, and third sample stream with respective first, second, and third information channels;

wherein accepting association parameters includes accepting a CSPMS = 6, and symbol index offsets in the range from 0 to 5; and

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wherein supplying indexing information includes supplying a symbol index with each soft symbol from the first, second, and third associated information channels.

21.   The method of claim 20 wherein supplying soft symbols includes supplying soft symbols from the first information channel with symbol indexes equal to 0, 3, 6, ..., supplying soft symbols from the second information channel with symbol indexes equal to 1, 4, 7, ..., and supplying soft symbols from the third information channel with symbol indexes equal to 2, 5, 8,